AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions and listings of the claims in this application.

LISTING OF THE CLAIMS:

1. (Currently Amended) A pressurized water pressure-reducing nozzle for generating microbubbles in a flotation plant, the nozzle comprising:

a first pressure reduction stage ~~(1)~~, an intermediate transfer chamber ~~(3)~~, a second pressure reduction stage ~~(2)~~ and an outlet pipe (4); ~~this nozzle being characterized in that:~~

- the first and second pressure reduction stages are produced in the form of a diaphragm comprising one or more orifices, the hydraulic diameter ~~(d1)~~ of the orifice of the first stage ~~(1)~~, or of the equivalent orifice if ~~this~~ the first stage comprises several orifices, being greater than the diameter ~~(d2)~~ of the orifice of the second stage, or of the equivalent orifice if ~~this~~ the second stage comprises several ~~of them~~orifices, the aforementioned orifices being ~~able to be~~ of ~~any~~ a preselected shape~~, but preferably circular~~, and further wherein

~~and in that~~:

- the first pressure reduction stage ~~(1)~~ performs a preliminary pressure reduction by absorbing 5 to 20% of the available pressure;

- the second pressure reduction stage ~~(2)~~, in which most of the pressure reduction occurs, causes the pressurized water to pass from saturation pressure to the nozzle outlet pressure;

- the intermediate chamber ~~(3)~~ is a transition chamber in which the pressurized water approaches saturation pressure by absorbing 5 to 30% of the available pressure and

- the outlet pipe ~~(4)~~ consists of a sudden pressure reduction and cavitation confinement pipe, whose minimum length ~~(L)~~ substantially corresponds to the distance separating the end of said pipe on the second pressure reduction stage side from the point of reattachment of the jets onto the walls of the pipe, with an angle of divergence ~~(a)~~ of the jets, before reattachment, between 3° and 12°~~, preferably between 6° and 9°~~.

2. (Currently amended) The nozzle as claimed in claim 1, wherein the orifice of the first pressure reduction stage ~~consists of~~ comprises a valve~~,~~ and a baffle or ~~any~~ other preselected flow restriction device.

3. (Currently amended) The nozzle as claimed in claim 1, wherein the intermediate or transition chamber ~~(3)~~ has a height ~~(e)~~, i.e. a distance separating the first pressure reduction stage ~~(1)~~ from the second stage ~~(2)~~, which is less than the diameter ~~(d1)~~ of the orifice of the diaphragm forming the first pressure reduction stage~~, preferably~~ that is equal to half this diameter.

4. (Previously Presented) The nozzle as claimed in claim 1, wherein the diaphragm forming the second stage comprises a single central orifice.

5. (Previously Presented) The nozzle as claimed in claim l, wherein the diaphragm forming the second stage comprises a plurality of orifices situated at an equal distance from the center of the diaphragm.

6. (Currently amended) The nozzle as claimed in claim 1, wherein the hydraulic diameter ~~(d1)~~ of the orifice of the first pressure reduction stage ~~(1)~~ or of the equivalent orifice if ~~this~~ the first stage comprises several orifices, is between 1.6 and 1.1 times the diameter of the orifice of the second pressure reduction stage or of the equivalent orifice if ~~this~~ the second stage comprises several orifices.

7. (Currently amended) The nozzle as claimed in claim 1, wherein the second pressure reduction stage ~~(2)~~ has sudden widening, the outlet angle of the orifice or orifices of the diaphragm forming it being level (180°) or between 90° and 270°.

8. (Currently amended) The nozzle as claimed in claim l, wherein the outlet pipe ~~(4)~~ terminates in a trumpet-shaped divergent end ~~divergent (5)~~.